

CLAIMS

1. A method of hydrocracking hydrocarbon oils, comprising the steps of:

pre-contacting a hydrocracking catalyst with an organic nitrogen compound; and

contacting a feed oil substantially comprised of hydrocarbon oils and hydrogen with the hydrocracking catalyst that has been contacted with the organic nitrogen compound in order to obtain a hydrocarbon oil with a lower boiling point than that of the feed oil;

the organic nitrogen compound being an organic nitrogen compound having a boiling point that is lower than a 50% distillation temperature of the feed oil and that is higher than 200°C.

2. A method of hydrocracking hydrocarbon oils derived from petroleum comprising the steps of:

contacting a petroleum fraction containing an organic nitrogen compound and having a 95% distillation temperature that is lower than the 50% distillation temperature of a feed oil substantially comprised of hydrocarbon oils and that is higher than 200°C with a hydrocracking catalyst; and

contacting the feed oil and hydrogen with the hydrocracking catalyst that has been contacted with the petroleum fraction in order to obtain a hydrocarbon oil with a boiling point lower than that of the feed oil.

3. The hydrocracking method according to Claim 1, further comprising a step of sulfiding the hydrocracking catalyst, wherein the step of contacting the organic nitrogen compound with hydrocracking catalyst and the step of sulfiding the hydrocracking catalyst are performed simultaneously.

4. The hydrocracking method according to Claim 2, further comprising a step of sulfiding the hydrocracking catalyst, wherein the step of contacting petroleum fraction with hydrocracking catalyst and the step of sulfiding the hydrocracking catalyst are performed simultaneously.

5. The hydrocracking method according to Claim 2, wherein the petroleum fraction comprises at least 2 ppm of the organic nitrogen compound by nitrogen weight.

6. The hydrocracking method according to Claim 1 or Claim 3, wherein, as a result of contacting the organic nitrogen compound with hydrocracking catalyst, the hydrocracking catalyst

comprises 0.01% to 1% by nitrogen weight of the organic nitrogen compound per catalyst weight.

7. The hydrocracking method according to any one of Claims 2, 4, and 5, wherein, as a result of contacting the petroleum fraction with hydrocracking catalyst, the hydrocracking catalyst contains 0.01% to 1% by nitrogen weight of the organic nitrogen compound per catalyst weight.

8. The hydrocracking method according to Claim 1 or 2, wherein a catalyst deactivation inhibitor is added when the feed oil and hydrogen are contacted with the hydrocracking catalyst.

9. The hydrocracking method according to Claim 8, wherein the catalyst deactivation inhibitor is a nitrogen compound.

10. The hydrocracking method according to Claim 9, wherein the inhibitor is added 5 ppm or less by weight of nitrogen per the feed oil.

11. The hydrocracking method according to any one of Claims 2, 4 and 5, wherein the petroleum fraction is gas oil.

12. A hydrocracking catalyst, which is used for hydrocracking a feed oil derived from petroleum by contacting the

feed oil and hydrogen with the hydrocracking catalyst to obtain a hydrocarbon oil with a boiling point lower than that of the feed oil, comprising:

a carrier made from a porous refractory oxide;

a hydrogenation active metal component, and

an organic nitrogen compound with a boiling point that is lower than the 50% distillation temperature of the feed oil and that is higher than 200°C,

the content of the organic nitrogen compound being not less than 0.01 wt% by nitrogen weight per the hydrogenation catalyst.

13. The hydrocracking catalyst according to Claim 12, wherein the organic compound is an organic compound contained in gas oil or kerosene.

14. The hydrocracking catalyst according to Claim 12 or Claim 13, which is produced by contacting a solution of sulfiding agent dissolved in gas oil or kerosene with the catalyst having the carrier and the hydrogenation active metal component.